

2

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/527,771

Source: PT/10

Date Processed by STIC: 3/22/05

ENTERED



PCT

RAW SEQUENCE LISTING

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:04

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

3 <110> APPLICANT: University Gent
 5 <120> TITLE OF INVENTION: Ostertagia vaccine
 7 <130> FILE REFERENCE: 2002-015
 C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/527,771
 C--> 9 <141> CURRENT FILING DATE: 2005-03-11
 9 <150> PRIOR APPLICATION NUMBER: US 10/243,319
 10 <151> PRIOR FILING DATE: 2002-09-13
 12 <160> NUMBER OF SEQ ID NOS: 27
 14 <170> SOFTWARE: PatentIn version 3.2
 16 <210> SEQ ID NO: 1
 17 <211> LENGTH: 828
 18 <212> TYPE: DNA
 19 <213> ORGANISM: Ostertagia ostertagi
 22 <220> FEATURE:
 23 <221> NAME/KEY: CDS
 24 <222> LOCATION: (11)..(721)
 26 <400> SEQUENCE: 1

P.b

27	gcagctcggg	atg	cag	gca	cta	atc	ggt	att	gct	gcc	cta	tac	ctg	gtg	49		
28		Met	Gln	Ala	Leu	Ile	Gly	Ile	Ala	Ala	Leu	Tyr	Leu	Val			
29		1				5					10						
31	ctg	gtg	aca	tca	aat	acc	gaa	gca	ggt	ttt	tgc	tgc	cca	gca	gat	cta	97
32	Leu	Val	Thr	Ser	Asn	Thr	Glu	Ala	Gly	Phe	Cys	Cys	Pro	Ala	Asp	Leu	
33		15				20					25						
35	aac	caa	act	gat	gag	gca	aga	maa	atc	ttc	ctc	gat	ttt	cac	aat	caa	145
W--> 36	Asn	Gln	Thr	Asp	Glu	Ala	Arg	Xaa	Ile	Phe	Leu	Asp	Phe	His	Asn	Gln	
37	30					35				40				45			
39	gtt	cgc	cgt	gat	ata	gca	ggt	gca	agc	ccg	ttg	ctc	aac	ctc	acc	gga	193
40	Val	Arg	Arg	Asp	Ile	Ala	Gly	Ala	Ser	Pro	Leu	Leu	Asn	Leu	Thr	Gly	
41					50				55				60				
43	gct	gtt	car	atg	cga	aat	gtt	ctc	ggt	cca	gct	aag	aac	atg	tac	aga	241
44	Ala	Val	Gln	Met	Arg	Asn	Val	Leu	Gly	Pro	Ala	Lys	Asn	Met	Tyr	Arg	
45			65				70				75						
47	atg	gac	tgg	gac	tgc	aat	ctg	gaa	gca	aaa	gca	aag	gca	atg	att	tgg	289
48	Met	Asp	Trp	Asp	Cys	Asn	Leu	Glu	Ala	Lys	Ala	Lys	Ala	Met	Ile	Trp	
49		80				85				90							
51	cca	tgc	act	acg	cct	ctg	cca	ata	gac	acg	agt	att	cca	caa	aat	ctc	337
52	Pro	Cys	Thr	Thr	Pro	Leu	Pro	Ile	Asp	Thr	Ser	Ile	Pro	Gln	Asn	Leu	
53		95				100				105							
55	gct	car	tgg	cta	ctt	ttc	caa	aac	agt	cag	gaa	amt	gaa	gtg	ttg	acg	385
56	Ala	Gln	Trp	Leu	Leu	Phe	Gln	Asn	Ser	Gln	Glu	Xaa	Glu	Val	Leu	Thr	
57	110				115				120				125				
61	caa	acg	ccc	tgg	tct	tgg	gta	acc	gca	tca	cta	cga	aat	ctt	caa	cct	433
62	Gln	Thr	Pro	Trp	Ser	Trp	Val	Thr	Ala	Ser	Leu	Arg	Asn	Leu	Gln	Pro	

RAW SEQUENCE LISTING

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:04

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

```

63          130          135          140
65 gat aca gaa gct aac att tat aac tgg caa att aga cca cta tcc aac      481
66 Asp Thr Glu Ala Asn Ile Tyr Asn Trp Gln Ile Arg Pro Leu Ser Asn
67          145          150          155
69 att gcg aac tgg caa aac cta aaa gtt gga tgt gct cac aaa gtg tgc      529
70 Ile Ala Asn Trp Gln Asn Leu Lys Val Gly Cys Ala His Lys Val Cys
71          160          165          170
73 aaa ttc ccc acc ggg aca aat atg gtt gtg tct tgc gct tat ggc ggc      577
74 Lys Phe Pro Thr Gly Thr Asn Met Val Val Ser Cys Ala Tyr Gly Gly
75          175          180          185
77 gaa gta ctc caa gat aac gaa gtt gta tgg gac aag gga cca act tgc      625
78 Glu Val Leu Gln Asp Asn Glu Val Val Trp Asp Lys Gly Pro Thr Cys
79 190          195          200          205
81 atg tgc aat gct tat ccc aac tcg ttc tgc tgc aac aat ctg tgt gac      673
82 Met Cys Asn Ala Tyr Pro Asn Ser Phe Cys Cys Asn Asn Leu Cys Asp
83          210          215          220
85 aca ata gct gct gcg aca ctt cgc aag cag cct tgt aaa tcg act tga      721
86 Thr Ile Ala Ala Ala Thr Leu Arg Lys Gln Pro Cys Lys Ser Thr
87          225          230          235
89 agcgaaaagg cggttggtgat gtcccgaaga gaacggaagt gatcacatca cagtatccca      781
91 taatgtcggtt catcataata aacgcacttc tctgaaaaaa aaaaaaa      828
94 <210> SEQ ID NO: 2
95 <211> LENGTH: 236
96 <212> TYPE: PRT
97 <213> ORGANISM: Ostertagia ostertagi
99 <220> FEATURE:
100 <221> NAME/KEY: misc_feature
101 <222> LOCATION: (37)..(37)
102 <223> OTHER INFORMATION: The xaa at location 37 stands for Lys, or Gln.
104 <220> FEATURE:
105 <221> NAME/KEY: misc_feature
106 <222> LOCATION: (121)..(121)
107 <223> OTHER INFORMATION: The xaa at location 121 stands for Asn, or Thr.
109 <400> SEQUENCE: 2
111 Met Gln Ala Leu Ile Gly Ile Ala Ala Leu Tyr Leu Val Leu Val Thr
112 1          5          10          15
115 Ser Asn Thr Glu Ala Gly Phe Cys Cys Pro Ala Asp Leu Asn Gln Thr
116          20          25          30
W--> 119 Asp Glu Ala Arg Xaa Ile Phe Leu Asp Phe His Asn Gln Val Arg Arg
120          35          40          45
123 Asp Ile Ala Gly Ala Ser Pro Leu Leu Asn Leu Thr Gly Ala Val Gln
124          50          55          60
127 Met Arg Asn Val Leu Gly Pro Ala Lys Asn Met Tyr Arg Met Asp Trp
128 65          70          75          80
131 Asp Cys Asn Leu Glu Ala Lys Ala Lys Ala Met Ile Trp Pro Cys Thr
132          85          90          95
135 Thr Pro Leu Pro Ile Asp Thr Ser Ile Pro Gln Asn Leu Ala Gln Trp
136          100          105          110
139 Leu Leu Phe Gln Asn Ser Gln Glu Xaa Glu Val Leu Thr Gln Thr Pro

```

RAW SEQUENCE LISTING

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:04

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

```

140          115          120          125
143 Trp Ser Trp Val Thr Ala Ser Leu Arg Asn Leu Gln Pro Asp Thr Glu
144          130          135          140
147 Ala Asn Ile Tyr Asn Trp Gln Ile Arg Pro Leu Ser Asn Ile Ala Asn
148 145          150          155          160
151 Trp Gln Asn Leu Lys Val Gly Cys Ala His Lys Val Cys Lys Phe Pro
152          165          170          175
155 Thr Gly Thr Asn Met Val Val Ser Cys Ala Tyr Gly Gly Glu Val Leu
156          180          185          190
159 Gln Asp Asn Glu Val Val Trp Asp Lys Gly Pro Thr Cys Met Cys Asn
160          195          200          205
163 Ala Tyr Pro Asn Ser Phe Cys Cys Asn Asn Leu Cys Asp Thr Ile Ala
164          210          215          220
167 Ala Ala Thr Leu Arg Lys Gln Pro Cys Lys Ser Thr
168 225          230          235

```

```

171 <210> SEQ ID NO: 3
172 <211> LENGTH: 306
173 <212> TYPE: DNA
174 <213> ORGANISM: Ostertagia ostertagi
177 <220> FEATURE:
178 <221> NAME/KEY: CDS
179 <222> LOCATION: (3)..(284)
181 <220> FEATURE:
182 <221> NAME/KEY: misc_feature
183 <222> LOCATION: (10)..(10)
184 <223> OTHER INFORMATION: n is a, c, g, or t
186 <220> FEATURE:
187 <221> NAME/KEY: misc_feature
188 <222> LOCATION: (16)..(16)
189 <223> OTHER INFORMATION: n is a, c, g, or t
191 <220> FEATURE:
192 <221> NAME/KEY: misc_feature
193 <222> LOCATION: (82)..(82)
194 <223> OTHER INFORMATION: n is a, c, g, or t
196 <220> FEATURE:
197 <221> NAME/KEY: misc_feature
198 <222> LOCATION: (226)..(226)
199 <223> OTHER INFORMATION: n is a, c, g, or t
201 <220> FEATURE:
202 <221> NAME/KEY: misc_feature
203 <222> LOCATION: (240)..(240)
204 <223> OTHER INFORMATION: n is a, c, g, or t
206 <220> FEATURE:
207 <221> NAME/KEY: misc_feature
208 <222> LOCATION: (248)..(248)
209 <223> OTHER INFORMATION: n is a, c, g, or t
211 <400> SEQUENCE: 3

```

```

W--> 212 gc ggc cgc gnc gac cnt gtg atc agc atc atg gct ctg tgg ccc gtg
      213 Gly Arg Xaa Asp Xaa Val Ile Ser Ile Met Ala Leu Trp Pro Val

```

47

RAW SEQUENCE LISTING

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:04

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

```

214      1          5          10          15
216 gac cgt ttc gag cgc atg ctg gaa gag ccg ttc ang cgt gtg gat cgt      95
217 Asp Arg Phe Glu Arg Met Leu Glu Glu Pro Phe Xaa Arg Val Asp Arg
218      20          25          30
220 ttc tgc ccg atg aga gat gcg gac tgg atg agc cgt cag att atg ccc      143
221 Phe Cys Pro Met Arg Asp Ala Asp Trp Met Ser Arg Gln Ile Met Pro
222      35          40          45
224 tac tgg aga gat gcc gat cac tct gtg ctt cat gtg gga aat caa aca      191
225 Tyr Trp Arg Asp Ala Asp His Ser Val Leu His Val Gly Asn Gln Thr
226      50          55          60
228 aag gat gtc gtg aat gac gag aag aaa ttc gca gnc gct ttg gat gtg      239
229 Lys Asp Val Val Asn Asp Glu Lys Lys Phe Ala Xaa Ala Leu Asp Val
230      65          70          75
232 nca cac ttn agg cca gaa gag ttg aag gta caa ttg gaa gtg acg      284
233 Xaa His Xaa Arg Pro Glu Glu Leu Lys Val Gln Leu Glu Val Thr
234 80          85          90
236 tgaccttaca atcgaaggac at      306
241 <210> SEQ ID NO: 4
242 <211> LENGTH: 94
243 <212> TYPE: PRT
244 <213> ORGANISM: Ostertagia ostertagi
246 <220> FEATURE:
247 <221> NAME/KEY: misc_feature
248 <222> LOCATION: (3)..(3)
249 <223> OTHER INFORMATION: The xaa at location 3 stands for Asp, Gly, Ala, or Val.
251 <220> FEATURE:
252 <221> NAME/KEY: misc_feature
253 <222> LOCATION: (5)..(5)
254 <223> OTHER INFORMATION: The xaa at location 5 stands for His, Arg, Pro, or Leu.
256 <220> FEATURE:
257 <221> NAME/KEY: misc_feature
258 <222> LOCATION: (27)..(27)
259 <223> OTHER INFORMATION: The xaa at location 27 stands for Lys, Arg, Thr, or Met.
261 <220> FEATURE:
262 <221> NAME/KEY: misc_feature
263 <222> LOCATION: (75)..(75)
264 <223> OTHER INFORMATION: The xaa at location 75 stands for Asp, Gly, Ala, or Val.
266 <220> FEATURE:
267 <221> NAME/KEY: misc_feature
268 <222> LOCATION: (80)..(80)
269 <223> OTHER INFORMATION: The xaa at location 80 stands for Thr, Ala, Pro, or Ser.
271 <220> FEATURE:
272 <221> NAME/KEY: misc_feature
273 <222> LOCATION: (82)..(82)
274 <223> OTHER INFORMATION: The xaa at location 82 stands for Leu, or Phe.
276 <400> SEQUENCE: 4
W--> 278 Gly Arg Xaa Asp Xaa Val Ile Ser Ile Met Ala Leu Trp Pro Val Asp
279 1          5          10          15
282 Arg Phe Glu Arg Met Leu Glu Glu Pro Phe Xaa Arg Val Asp Arg Phe

```

RAW SEQUENCE LISTING

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:04

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

```

283          20          25          30
286 Cys Pro Met Arg Asp Ala Asp Trp Met Ser Arg Gln Ile Met Pro Tyr
287          35          40          45
290 Trp Arg Asp Ala Asp His Ser Val Leu His Val Gly Asn Gln Thr Lys
291          50          55          60
294 Asp Val Val Asn Asp Glu Lys Lys Phe Ala Xaa Ala Leu Asp Val Xaa
295 65          70          75          80
298 His Xaa Arg Pro Glu Leu Lys Val Gln Leu Glu Val Thr
299          85          90
302 <210> SEQ ID NO: 5
303 <211> LENGTH: 583
304 <212> TYPE: DNA
305 <213> ORGANISM: Ostertagia ostertagi
308 <220> FEATURE:
309 <221> NAME/KEY: CDS
310 <222> LOCATION: (2)..(583)
312 <400> SEQUENCE: 5
313 g gct ttt atc gga aaa ccc gca ccc gac ttc gcc aca aag gcc gtc tat      49
314   Ala Phe Ile Gly Lys Pro Ala Pro Asp Phe Ala Thr Lys Ala Val Tyr
315   1          5          10          15
317 aat ggc gac ttc atc gac gtg aaa ctg tct gac tac aag ggc aag tac      97
318 Asn Gly Asp Phe Ile Asp Val Lys Leu Ser Asp Tyr Lys Gly Lys Tyr
319          20          25          30
321 acc gtc ctc ttc ttc tat cca ctg gat ttc acg ttt gtc tgt cct acg      145
322 Thr Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr
323          35          40          45
325 gaa atc atc gcc ttt tcc gac cgt gtc gaa gaa ttc aaa aaa atc gat      193
326 Glu Ile Ile Ala Phe Ser Asp Arg Val Glu Glu Phe Lys Lys Ile Asp
327          50          55          60
329 gct gcg gtc ctc gct tgt tca amt gat tcc gtt ttc tct cat ctg gcg      241
W--> 330 Ala Ala Val Leu Ala Cys Ser Xaa Asp Ser Val Phe Ser His Leu Ala
331 65          70          75          80
333 tgg atc aat act cct cgc aag atg ggc ggc ctt ggt gac atg aac att      289
334 Trp Ile Asn Thr Pro Arg Lys Met Gly Gly Leu Gly Asp Met Asn Ile
335          85          90          95
337 ccc gtt ctt gct gac acc aac cac caa att gca aag gac tat ggt gta      337
338 Pro Val Leu Ala Asp Thr Asn His Gln Ile Ala Lys Asp Tyr Gly Val
339          100          105          110
341 ctg aaa gaa gac gaa gga atc gct tac aga ggt ctt ttc att att gac      385
342 Leu Lys Glu Asp Glu Gly Ile Ala Tyr Arg Gly Leu Phe Ile Ile Asp
343          115          120          125
345 cct aag gga att ctg cga cag atc act gtc aat gac ctt cct gtc ggt      433
346 Pro Lys Gly Ile Leu Arg Gln Ile Thr Val Asn Asp Leu Pro Val Gly
347          130          135          140
349 cgc tct gtg gat gag act ctc cgt ctg gtg cag gcc ttc caa tac gtt      481
350 Arg Ser Val Asp Glu Thr Leu Arg Leu Val Gln Ala Phe Gln Tyr Val
351 145          150          155          160
353 gac aag cat ggt gag gtg tgc cca gct ggt tgg act cct gga aaa gct      529
354 Asp Lys His Gly Glu Val Cys Pro Ala Gly Trp Thr Pro Gly Lys Ala

```

RAW SEQUENCE LISTING ERROR SUMMARY
 PATENT APPLICATION: US/10/527,771

DATE: 03/22/2005
 TIME: 09:46:06

Input Set : A:\PTO.SR.txt
 Output Set: N:\CRF4\03222005\J527771.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 37,121
 Seq#:2; Xaa Pos. 37,121
 Seq#:3; N Pos. 10,16,82,226,240,248
 Seq#:3; Xaa Pos. 3,5,27,75,80,82
 Seq#:4; Xaa Pos. 3,5,27,75,80,82
 Seq#:5; Xaa Pos. 72
 Seq#:6; Xaa Pos. 72
 Seq#:7; N Pos. 11,35,36,41,43,53,67,199,555,590,648,662,669,682
 Seq#:7; Xaa Pos. 4,12,14,15,18,23,67,197,221,223,228
 Seq#:8; Xaa Pos. 4,12,14,15,18,23,67,197,221,223,228
 Seq#:11; N Pos. 813,858
 Seq#:13; Xaa Pos. 83,86,87,88,90,91,92,93,95,96,97,98,99,100,102,103,104
 Seq#:13; Xaa Pos. 105,106,108,428
 Seq#:14; Xaa Pos. 83,86,87,88,90,91,92,93,95,96,97,98,99,100,102,103,104
 Seq#:14; Xaa Pos. 105,106,108,428
 Seq#:21; N Pos. 24,25,29,30,34,35

Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:15,16,17,18,19,20,21,22,23,24,25,26,27

VERIFICATION SUMMARY

DATE: 03/22/2005

PATENT APPLICATION: US/10/527,771

TIME: 09:46:06

Input Set : A:\PTO.SR.txt

Output Set: N:\CRF4\03222005\J527771.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application No
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:36 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ ID#:1
L:36 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:145
M:341 Repeated in SeqNo=1
L:119 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:32
M:341 Repeated in SeqNo=2
L:212 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
M:341 Repeated in SeqNo=3
L:278 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
M:341 Repeated in SeqNo=4
L:330 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ ID#:5
L:330 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:241
L:398 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:64
L:512 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0
M:341 Repeated in SeqNo=7
L:638 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
M:341 Repeated in SeqNo=8
L:924 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:784
M:341 Repeated in SeqNo=11
L:1030 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ ID#:13
L:1030 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:288
M:341 Repeated in SeqNo=13
L:1288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:80
M:341 Repeated in SeqNo=14
L:1517 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0